

# Proposal for Seq writing notation

This is the current notation for sequences

$(1, 3, 6, 10, 15)$  or  $a_n = a_{n-1} + a_{n-2}$

I love them, they can be very intuitive to think of and pretty much work like sets. but programming languages use them much more common and i think if we messed with the notion we would use them more frequently.

$$\sum_{i=0}^5 i$$

this notation by meaning includes an operation and a sequence. the syntax looks more like in computer languages (lisp for example) where you write the operator first:  $+ 1 2$ . although which one you prefer depends on your neurological structure, the importance is that we could use a slightly differing notation for sequences.

$$\mathbf{i}_0^5 1 = (0, 1, 2, 3, 4, 5)$$

the lower border is included, the upper border is included etc. same as the usual. one here is for the stepsize. have it blank to fill it with the lower bound

$\mathbf{i}_m^n = (m, \dots)$  where m is n-times repeated

now we can also define operators for sequences, suppose that they are ordered.

define a 'cat' operator and work with sets. why depend on programming languages?

why even have programming languages. everything can be defined in a mathy language, you chose parts for the application needed. let it become our controlled universal language. i cant make this into an article anymore...

you can do seqs that start with seqs. we could talk about what pack of cards was chosen from a deck of packs. list that and know what card was chosen when. do some probability calcs on the list... no words used! no bnf needed.

how about operating?

the *cat* (term: concatenation) adds strings/sequences in specific or unspecific order. more precise than  $\cup$ :

$$\text{suppose } \mathbf{i}_1^3 1; \mathbf{j}_4^6 1$$

$$\textcircled{D} \text{ cat } \mathbf{i}; \mathbf{j} : (1, 2, 3; 4, 5, 6) = (4, 5, 6; 1, 2, 3)$$

$$\textcircled{D} \text{ cat } \mathbf{i}, \mathbf{j} : \mathbf{i} \cup \mathbf{j} = (1, 2, 3, 4, 5, 6)$$

this can also be done using  $\cap$ :

$$\text{suppose } \mathbf{i}_1^6 1; \mathbf{j}_4^6 1$$

$$\textcircled{D} \mathbf{i} \cap \mathbf{j} = (1, 2, 3)$$